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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WU, QING YUAN

ART UNIT PAPER NUMBER

2194

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/884,009

Applicant(s)

HSIEH, BOR-MING

Examiner

Qing-Yuan Wu

Art Unit

2194

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12/10/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-21 and 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-21, and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/10/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

1. Claims 1-6, 8-21 and 23 are pending in the application.

***Claim Objections***

2. Claim 12 is objected under 37 CFR 1.75 as being a substantial duplicate of claim 11.

Appropriate correction is required.

***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 16-21, and 23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter because they are lacking utilities. (i.e. the computer program must be stored in a computer readable medium, and executed by a computer element to perform control of a technical procedure).

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 17-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The following terms lacks antecedent basis:

i. The first plurality- claims 17-21.

b. The following claim language is indefinite:

i. As per claim 19, it is uncertain whether “the first plurality” in line 9, refers to “the first plurality of threads.”

ii. As per claim 21, this claim is rejected for the same reason as claim 19 above.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-6, 8-21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young (U.S. Patent 6,609,161).

9. As to claim 23, Young teaches the invention substantially as claimed including a run queue data structure, the run queue data structure comprising [abstract, line 1]:

a first dimension data field comprising a first plurality of threads sorted with respect to command threads priority [col. 2, lines 25-29; abstract; 275, Fig. 3B]; and

a second dimension data field comprising a second plurality of threads sorted based on thread priority, the second plurality of threads comprising a head thread (i.e. a target head command block) and one or more other threads [col. 2, lines 30-35; SCBs 34, 167, 05, 270A-272A, Fig. 3B; col. 8, lines 30-36].

10. Young does not specifically teach a root thread. However, Young disclosed a target head command block in the first queue that is a part of the second queue [col. 2, lines 33-49].

11. It would have been obvious to one of an ordinary skill in the art at the time the invention was made, to have recognized that the target head command block is used to associate the second queue to the first queue.

12. As to claim 1, this claim is rejected for the same reason as claim 23 above. In addition, Young teaches the invention substantially as claimed including, associating a second plurality of threads that is priority sorted with the run queue in a manner that maintains a priority based scheduling semantic of the run queue [col. 3, lines 13-18; col. 6, lines 1-24; col. 7, lines 47-55; col. 8, lines 30-36; 270A, Fig. 3C].

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12. Young does not specifically teach in a deterministic amount of time equivalent to an amount of time to insert a single thread into the run queue. However, Young disclosed appending the target queue with SCSI control blocks (hereafter SCBs) remaining to be transmitted to the end of the common queue [col. 7, lines 36-55].

13. It would have been obvious to one of an ordinary skill in the art at the time the invention was made, to have recognized that the time required to associate/insert the plurality of threads in the run queue/common queue is equivalent to inserting a single thread in the run queue because only a single thread is being inserted (i.e. change in common tail pointer).

14. As to claim 2, Young teaches the invention substantially as claimed including wherein the second plurality of threads comprises a root thread, and wherein associating the second plurality of threads with the run queue further comprises inserting only the root thread into the run queue to represent the second plurality of nodes [col. 2, lines 33-35, 43-47].

15. As to claim 3, Young does not specifically teach and inserting each thread in the second plurality of threads into the run queue independent of any additional other queue access. However, Young disclosed inserting SCBs from target queues into common queue [col. 7, lines 36-55]. It would have been obvious to one of an ordinary skill in the art at the time the invention was made, to have recognized that no other queues are being accessed when a preceding thread is inserted into the run queue.

16. As to claim 4, this claim is rejected for the same reason as claim 2 above.
17. As to claim 5, this claim is rejected for the same reason as claim 2 above. In addition, Young teaches the invention substantially as claimed including removing the root thread from the run queue; and responsive to removing the root thread, inserting a next thread of the second plurality of threads into the run queue such that the priority based scheduling semantic of the run queue is preserved [col. 7, lines 36-55; Figs. 3B-3C].
18. As to claim 6, this claim is rejected for the same reason as claims 3 and 5 above.
19. As to claims 8, Young teaches substantially the method for managing a run queue. Therefore Young teaches substantially the system for implementing the method.
20. As to claim 9, this claim is rejected for the same reason as claim 3 above.
21. As to claim 10, this claim is rejected for the same reason as claim 1 above.
22. As to claims 11-12, these claims are rejected for the same reason as claim 2 above.
23. As to claim 13, this claim is rejected for the same reason as claim 23 above. In addition, Young teaches the queue being implemented in a linked list data structure [col. 2, lines 25-36].

24. As to claims 14-15, these claims are rejected for the same reason as claims 5-6 above.

25. As to claims 16, Young teaches substantially the method for managing a run queue. Therefore Young teaches substantially the computer-executable instructions for implementing the method.

26. As to claim 17, this claim is rejected for the same reason as claim 2 above.

27. As to claim 18, this claim is rejected for the same reason as claim 13 above.

28. As to claim 19, this claim is rejected for the same reason as claim 5 above.

29. As to claim 20, this claim is rejected for the same reason as claim 3 above.

30. As to claim 21, this claim is rejected for the same reason as claim 6 above.

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qing-Yuan Wu whose telephone number is (571) 272-3776. The examiner can normally be reached on 8:30am-5:00pm.




If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Qing-Yuan Wu

Examiner

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MENG-AI T. AN  
SENIOR PATENT EXAMINER  
ART UNIT 2194